

NON-PUBLIC?: N
ACCESSION #: 9204210102
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Braidwood 2 PAGE: 1 OF 04

DOCKET NUMBER: 05000457

TITLE: Main Feedwater Isolation Caused by Personnel Error
EVENT DATE: 03/15/92 LER #: 92-002-00 REPORT DATE: 04/13/92

OTHER FACILITIES INVOLVED: None DOCKET NO: 05000

OPERATING MODE: 1 POWER LEVEL: 098

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR
SECTION:
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: P. Lau, Regulatory Assurance TELEPHONE: (815) 458-2801
Ext. 2957

COMPONENT FAILURE DESCRIPTION:
CAUSE: SYSTEM: COMPONENT: MANUFACTURER:
REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT:

On March 15, 1992 a Nuclear Station Operator (NSO) (licensed) was taking Valve 2MS004G Out-of-Service (OOS). The OOS required eLectrical isolation. The NSO exited the Control Room with 6 OOS cards to remove 6 fuses. There were two fuses that required removal in control cabinet panel 2PA28J. OOS card #10 was for fuse FU-51 in 2PA28J, and OOS card #11 was for fuse FU-52 in 2PA28J. While looking at card #10 and #11, the NSO thought the fuses to be removed were fuses 10 and 11. The NSO first removed fuse 10 and de-energized the water hammer prevention reLays for Low 28 Steam Generator (S/G) level. Shortly thereafter, the NSO removed fuse 11 and de-energized the water hammer prevention protection relays for Low 2C S/G pressure. The removal of these fuses caused a feedwater isolation for the 2B and 2C S/G's. After realizing that feedwater would not be reestablished, operators in the Control Room decided to manually trip the reactor. As the Unit 2 NSO was proceeding to the manual reactor trip control switch, an automatic reactor trip occurred at 0620 because

2C S/G level was at the low-low level setpoint of 17%. The cause of the event was personnel error by the NSO. The NSO transposed the OOS card number for the fuse number and removed the wrong fuses.

END OF ABSTRACT

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A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: Braidwood 2; Event Date: March 15, 1992; Event Time: 0620
Mode: 1 - Power Operation; Rx Power: 98%
RCS {AB} Temperature/Pressure: NOT/NOP

B. DESCRIPTION OF EVENT:

There were no systems or components inoperable at the beginning of the event which contributed to the severity of the event.

On March 15, 1992 a Nuclear Station Operator (NSO) (licensed-RO) was given the task of taking Steam Dump Valve 2MS004G Out-of-Service (OOS) for planned maintenance. The specified OOS method required mechanical and electrical isolation. The NSO then assigned the mechanical isolation portion of the OOS to an Equipment Attendant (EA) (non-Licensed). The EA completed the mechanical isolation and returned the OOS paperwork to the NSO for further processing.

After reviewing the electrical isolation requirements, the NSO realized that removing power to the valve would require exiting the Control Room. The NSO told the Unit 2 NSO that he would be going to the control cabinet panels in the Auxiliary Electric Equipment Room (AEER) to remove the 6 fuses specified on the OOS form. The NSO exited the Control Room with 6 OOS cards and obtained the keys to control cabinets 2PA26J, 2PA27J and 2PA28J. There were two fuses that required removal in each cabinet. The fuses were identified as FU-51 and FU-52. OOS card #6 was FU-51 in 2PA26J, OOS card #7 was FU-52 in 2PA26J, OOS card #8 was FU-51 in 2PA27J, OOS card #9 was FU-52 in 2PA27J, OOS card #10 was FU-51 in 2PA28J, and OOS card #11 was FU-52 in 2PA28J.

The NSO then entered the AEER and proceeded to place OOS cards #10 and #11 in 2PA28J. The NSO unlocked and opened the cabinet door for 2PA28J. The NSO then read OOS cards #10 and #11. The NSO rechecked the cabinet door to ensure that he was in the correct cabinet.

While looking at card #10 and #11, the NSO thought the fuses to be removed were fuses 10 and 11 in 2PA28J. Fuses 10 and 11 were at the

top of the cabinet and the NSO noticed that the fuses were not paired as expected, but were adjacent. Due to previous experience, the NSO thought that this was acceptable and first removed fuse 10. The NSO heard a relay actuate. The NSO then tied OOS card #10 to the removed fuse. Shortly thereafter, the NSO removed fuse 11. The NSO heard some additional relays unexpectedly actuate in the AEER and heard an announcement instructing him to reinstall the removed fuses. The NSO attempted to reinstall the fuses. But due to the location in the upper portion of the cabinet, the NSO was unable to promptly reinstall the removed fuses.

NOTE: When fuse 10 was removed in 2PA28J, it de-energized the water hammer prevention protection relays for Low 2B Steam Generator (S/G) level. Valve 2FW039B "S/G 2B Feedwater Preheater Bypass Valve" immediately started to close and a high main feedwater nozzle flow alarm was received in the Control Room. Later, after a 45-second time delay, valve 2FW009B "S/G 2B Feedwater Isolation Valve" closed and isolated all but a small portion of feedwater flow to the 2B S/G.

NOTE: When fuse 11 was removed in 2PA28J, it de-energized the water hammer prevention protection relays for Low 2C S/G pressure. 2FW009C "S/G 2C Feedwater Isolation Valve" and 2FW039C "S/G 2C Feedwater Preheater Bypass Valve" immediately started to close and isolated all but a small portion of feedwater flow to the 2C S/G.

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With essentially no feedwater to the 2C S/G, Level rapidly decreased. Operators in the Control Room recognized that the feedwater flow was isolated to the 2C S/G and attempted to reopen 2FW009C. Due to flow, temperature and time permissive interlocks associated with opening 2FW009C, this attempt was unsuccessful. Shortly thereafter, due to the 45-second time delay expiration, valve 2FW009B started to close. The Control Room operators realized that feedwater would not be reestablished and decided to manually trip the reactor. As the Unit 2 NSO was proceeding to the manual reactor trip control switch, an automatic reactor trip occurred at 0620 due to the level in the 2C S/G reaching the Low-Low level setpoint of 17%. Following the reactor trip, the turbine tripped and an automatic start of Auxiliary Feedwater (AF) {BA} occurred as designed. At 0720, stable plant conditions were established.

The appropriate NRC notification via the ENS phone system was made at 0828 pursuant to 10CFR50.72(b)(2)(ii).

This event is being reported pursuant to 10CFR50.73(a)(2)(iv) - any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature, including the Reactor Protection System.

C. CAUSE OF EVENT:

The cause of the event was cognitive personnel error by the NSO.

While placing the OOS cards in the AEER, the NSO did not recognize that OOS cards #10 and #11 were for fuse 51 and fuse 52. The NSO read the information on the card and transposed the OOS card number Located on the bottom of the card for the fuse number. The incorrect fuses were removed and resulted in the isoLation of feedwater to the 26 and 2C S/G's. An automatic reactor trip occurred due to the level in the 2C S/G reaching the low-low level setpoint of 17%.

D. SAFETY ANALYSIS:

This event had no effect on the safety of the plant or the public. ALL safety systems operated as designed. The reactor automatically tripped at the low-low S/G level setpoint. This setpoint ensures that the reactor is taken sub-critical while sufficient S/G water inventory is available to remove the initial decay heat. The automatic initiation of one of the two redundant AF pumps provides adequate flow to reestablish normal S/G levels and remove long-term decay heat without significant impact to the temperature, pressure and inventory of the Reactor Coolant System. Both AF pumps were available and initiated as designed during this event.

E. CORRECTIVE ACTIONS:

A review of the labeling of the OOS card will be performed to examine if the information on the card can be changed to reduce transpositioning. This item will be tracked to completion by Action Item 457-180-92-00201.

To reduce the effects caused by an unnecessary actuation of the water hammer prevention protection system, an evaluation of the system will be performed. This item will be tracked to completion by Action Item 457-180-92-00202.

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The station will finalize its efforts in establishing a self-check

program. This program will include responsibility for each worker to verify that the proper equipment is being worked on. Appropriate training will also be provided after the program is developed. This item will be tracked to completion by Action Item 457-200-91-01703.4.

F. PREVIOUS OCCURRENCES:

A search of previous LERs identified previous occurrences of wrong train events. Also, several similar (non-reportable) events relating to wrong unit/wrong train events were identified. Corrective actions are currently in progress to address similarities between these occurrences.

G. COMPONENT FAILURE DATA:

This event was not the result of component failure, nor did any components fail as a result of this event.

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Commonwealth Edison
Braidwood Nuclear Power Station
Route #1, Box 84
Braceville, Illinois 60407
Telephone 815/458-2801

April 13, 1992
BW/92-0192

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D. C. 20555

Dear Sir:

Subject: Licensee Event Report 92-002-00

The enclosed Licensee Event Report from Braidwood Generating Station is being transmitted to you in accordance with requirements of 10CFR50.73 (a)(2)(iv) which requires a 30-day written report.

This report is number 92-002-00; Docket No. 50-457.

K. L. Kofron
Station Manager

Braidwood Nuclear Station

KLK/DN/dla
539/ZD85G

Encl.: Licensee Event Report No.92-002-00

cc: NRC Region III Administrator
NRC Resident Inspector
INPO Record Center
CECo Distribution List

*** END OF DOCUMENT ***
